user manual

PS300B

Power Supply



um PS300B-IM/Rev.C0/07-12

Hoefer®

Page Finder

Important Information – English

- If this equipment is used in a manner not specified by Hoefer, Inc. the protection provided by the equipment may be impaired.
- This instrument is designed for indoor laboratory use only.
- Only accessories and parts approved or supplied by Hoefer, Inc. may be used for operating, maintaining, and servicing this product.
- Warning! Because this instrument can develop sufficient voltage and current to produce a lethal shock, care must be exercised in its operation.
- This instrument is designed in accordance with the EN61010-1:2001 electrical safety standard. Nevertheless, it should be used only by properly trained operators. Read this entire manual before using the instrument and use only according to the instructions.
- The instrument must always be used with the earth lead of the power cord correctly grounded to earth at the mains outlet.
- Use only undamaged electrical wire and equipment specific for the voltages you will use. All equipment connected to high voltage should be in accordance with EN61010-1:2001.
- Keep the instrument as dry and clean as possible. Wipe regularly with a soft, damp cloth. Let the instrument dry completely before use.
- Do not operate the instrument in extreme humidity (above 80%). Avoid condensation by letting the unit equilibrate to ambient temperature when taking the instrument from a colder to a warmer environment.
- To permit sufficient cooling, ensure that the vents of the instrument are not covered.

Duležité Informace – Czech

- Pokud by toto zařízení je použito způsobem, který není podle Hoefer, ochrana poskytovaná na základě Inc. zařízení může být narušena.
- Tento nástroj je určen pro vnitřní použití v laboratoři pouze.
- Pouze příslušenství a části schválen, nebo poskytnutých Hoefer, Inc. mohou být použity pro provoz, údržbu, a údržbě tohoto výrobku.
- Pozor! Protože tento nástroj může vyvinout dostatečný napětí a proud, který má vyrábět a smrtiacej šok, péče musí být vykonávána v jeho provoz.
- Tento nástroj je určen v souladu s EN61010-1:2001 elektrické bezpečnostní normy. Přesto, že by měly být použity pouze řádně vyškolený operátorů. Číst celé toto ruční před použitím nástroje a použití pouze v souladu s pokyny.
- Přístroj musí být vždy používají se na výkonu zemi vést šňůra správně zemněny k zemi na síti výústce.
- Využití pouze nepoškozené elektrické dráty a vybavení pro napětí budete používat. Všechna zařízení spojené s vysokým napětím by měla být v souladu s EN61010-1:2001.
- Si ponechá nástroje jako suchý a čistý jako možné. Otřete pravidelně s a měkké, vlhkým hadříkem. Nechť je nástroj nenastavený úplně před použitím.
- Nejsou provozována na nástroj v extrémní vlhkost (nad 80%). Předešlo kondenzaci o pronájmu jednotky na okolní teplotu nechá při přijímání nástroj z chladnější do teplého prostředí.
- Pro umožnění dostatečné chlazení, zajistit, aby otvory nástroje jsou nevztahuje.

Vigtig Information – Danish

- Hvis dette udstyr bruges i en måde ikke specificeret ved Hoefer, Inc. den beskyttelse, som er blevet forsynet af udstyret kan måske svækkes.
- Dette instrument er designet for indendørs laboratoriumbrug bare.
- Bare tilbehør og del godkendede eller forsynede ved Hoefer, Inc. kan måske bruges for drive, funktionsfejl, og betjening dette produkt.
- Advare! Fordi dette instrument kan udvikle tilstrækkelig spænding og strøm at fremstille et dødbringende chok, skal pleje bruges i dets drift.
- Dette instrument er designet i overensstemmelse med EN61010-1:2001 elektrisk sikkerhedstandard. Alligevel, skulle det bruges bare af passende trænede operatører. Læs denne hel håndbog før bruging instrumentet og brug bare i henhold til instruktionerne.
- Instrumentet skal altid bruges med jordblyet af netledningen rigtigt jordede til jord på hovedledningsudløbet.
- Bruger bare uskadt elektrisk tråd og udstyr, som være specifik for spændingerne du vil bruge. Alt udstyr forbundet til høj spænding skulle være i overensstemmelse med EN61010-1:2001.
- Beholder instrumentet så tør og ren som mulig. Tør regulært med et blødt, fugtigt stof. Lad instrumenttørken komplet før brug.

- Driver ikke instrumentet i yderst fugtighed (ovenfor 80%). Undgå kondensation ved lade enheden equilibrate til omgivende temperatur ved tageen instrumentets fra et koldere til et varmere miljø.
- At tillade tilstrækkelig afkøling, forsikrer, at lufthullerne af instrumentet er ikke dækket.

Belangrijke Informatie – Dutch

- Indien deze uitrusting in een manier wordt gebruikt die niet door Hoefer is gespecificeerd, Nv. de bescherming die door de uitrusting is verzorgd kan worden geschaad.
- Dit instrument is voor binnenlaboratoriumgebruik enkel ontworpen.
- Enkel onderdelen en delen keurden goed of leverden door Hoefer, Nv. kan voor het bedienen worden gebruikt, handhavend en onderhouden van dit product.
- Waarschuwend! Omdat dit instrument voldoende spanning en stroom kan ontwikkelen om een dodelijke schok te produceren, moet zorg in zijn operatie worden geoefend.
- Dit instrument is in overeenstemming met de EN61010-1:2001 elektrische veiligheidsstandaard ontworpen. Niettemin zou het enkel door goed getrainde bedieningslieden moeten worden gebruikt. Lees dit volledige handboek voor het gebruik het instrument en gebruik enkel volgens de instructies.
- Het instrument moet altijd met de aardeleiding van het stroomsnoer correct grondde naar aarde aan het hoofdafzetgebied worden gebruikt.
- Gebruik enkel onbeschadigde elektrische draad en uitrustings specifiek voor de spanningen u zult gebruiken. Alle uitrustingen sloten aan aan hoogspanning zou in overeenstemming met EN61010-1:2001 moeten zijn.
- Houd het instrument zo droge en schone zoals mogelijk Bij. Wis regelmatig met een zacht, temper doek. Verhuur het instrument droogt volledig voor het gebruik.
- Bedien niet het instrument in extreme vochtigheid (bovenstaande 80%). Vermijd condensatie door het verhuren van de eenheid in evenwicht brengt naar omgevingstemperatuur wanneer nemen het instrument van een kouder naar een lievere omgeving.
- Om toe te staan voldoende afkoelen, verzeker dat de luchtopeningen van het instrument niet bedekt zijn.

Tärkeää Tietoa – Finnish

- Jos tätä varusteita käytetään tavassa ei määritetty Hoeferille, Inc. suojelu ehkäisty varusteille saattaa olla avuton.
- Tämä väline suunnitellaan sisälaboratoriokäytölle vain.
- Vain lisävarusteet ja osat hyväksyivät tai toimitti Hoeferin oheen, Inc.:ää voi käyttää käyttämiselle, valvoalle, ja servicing tämä tuote.
- Varoittaminen! Koska tämä väline voi kehittää riittävä jännitteen ja virran tuottaa kuolettavan järkytyksen, huolta täytyy harjoittaa toiminnossaan.
- Tämä väline suunnitellaan EN61010-1:2001 sähköturvallisuusstandardin mukaisesti. Silti pitäisi käyttää vain ohi oikeasti koulutetut käyttäjät. Lue tämä kokonainen manuaalinen ennen välinettä ja käyttö vain ohjeiden mukaan.
- Välinettä täytyy käyttää aina valtanuoran maalyijystä perusti oikein maadoittaa sähköverkkoaukossa.
- Käyttää vain undamaged sähkömetallilankaa ja varusteita, täsmällinen jännitteille käyttää. Kaikki varusteet yhdistetty korkeaan jännitteeseen pitäisi olla EN61010-1:2001IN mukaisesti.
- Pitää välineen yhtä kuiva ja puhdas kuin mahdollinen. Pyyhi säännöllisesti pehmeällä, kostealla kankaalla. Anna väline kuivua täysin ennen käyttöä.
- Ei käytä välinettä extreme-ilmankosteudessa (80%)n yläpuolella. Vältä tiivistymistä antamalla yksikön equilibrate ympäröivään lämpötilaan kun ottaminen väline kylmempi lämpimämpään ympäristöön.
- Sallia riittävän jäähdyttäminen, varmistaa että välineen ilmareiät peitetään.

Information Importante – French

- Si cet équipement est utilisé dans une manière pas spécifié par Hoefer, Inc. la protection fourni par l'équipement pourrait être diminuée.
- Cet instrument est conçu pour l'usage de laboratoire intérieur seulement.
- Seulement les accessoires et les parties ont approuvé ou ont fourni par Hoefer, Inc. pourrait être utilisé pour fonctionner, maintenir, et entretenir ce produit.
- Avertissant! Parce que cet instrument peut développer la tension et le courant suffisants pour produire un choc mortel, le soin doit être exercé dans son opération.
- Cet instrument est conformément conçu à l'EN61010-1:2001 norme de sécurité électrique. Néanmoins,

il devrait être seulement utilisé par les opérateurs convenablement entraînés. Lire ce manuel entier avant utiliser l'instrument et l'usage seulement selon les instructions.

- L'instrument toujours doit être utilisé avec l'avance de terre du cordon d'alimentation correctement a fondé à la terre à la sortie principale.
- Utiliser le fil et l'équipement électriques seulement intacts spécifiques pour les tensions que vous utiliserez. Tout équipement connecté à haute tension devrait être conformément à EN61010-1:2001.
- Garder l'instrument aussi sec et propre comme possible. Essuyer régulièrement avec un doux, étouffer du tissu. Laisser l'instrument sèche complètement avant l'usage.
- Ne pas fonctionner l'instrument dans l'extrême humidité (au-dessus de 80%). Eviter la condensation en laissant l'equilibrate d'unité à la température ambiante en prenant l'instrument d'un plus froid à un environnement plus chaud.
- Permettre le refroidissement suffisant, garantir que les conduits de l'instrument ne sont pas couverts.

Wichtige Informationen – German

- Wenn diese Ausrüstung gewissermaßen nicht angegeben durch Hoefer, Inc verwendet wird, kann der durch die Ausrüstung zur Verfügung gestellte Schutz verschlechtert werden.
- Dieses Instrument wird für den Innenlaborgebrauch nur dafür entworfen.
- Nur Zusätze und Teile genehmigten oder lieferten durch Hoefer, Inc kann für das Funktionieren, das Aufrechterhalten, und die Wartung dieses Produktes verwendet werden.
- Die Warnung! Weil dieses Instrument genügend Stromspannung und Strom entwickeln kann, um einen tödlichen Stoß zu erzeugen, muss Sorge in seiner Operation ausgeübt werden.
- Dieses Instrument wird in Übereinstimmung mit dem EN61010-1:2001 elektrischen Sicherheitsstandard dafür entworfen. Dennoch sollte es nur von richtig erzogenen Maschinenbedienern verwendet werden. Lesen Sie dieses komplette Handbuch vor dem Verwenden des Instrumentes und verwenden Sie nur gemäß den Instruktionen.
- Das Instrument muss immer mit der Erdleitung der Macht-Schnur richtig niedergelegt zur Erde am Hauptausgang verwendet werden.
- Nur unbeschädigte elektrische Leitung und Ausrüstung spezifisch für die Stromspannungen verwenden, die Sie verwenden werden. Die ganze mit der Hochspannung verbundene Ausrüstung sollte in Übereinstimmung mit EN61010-1:2001 sein.
- Das Instrument ebenso trocken halten und reinigen wie möglich. Wischen Sie regelmäßig mit einem weichen, befeuchten Sie Stoff. Lassen Sie das Instrument trocken völlig vor dem Gebrauch.
- Das Instrument in der äußersten Feuchtigkeit (über 80 %) nicht bedienen. Vermeiden Sie Kondensation, die Einheit equilibrate zur Umgebungstemperatur laßend, wenn Sie das Instrument von einem kälteren bis eine wärmere Umgebung nehmen.
- Um das genügend Abkühlen zu erlauben, stellen Sie sicher, dass die Öffnungen des Instrumentes nicht bedeckt werden.

Informazioni Importanti – Italiano

- Se quest'apparecchiatura è usata in un modo specificato da Hoefer, Inc. la protezione fornito dall'apparecchiatura potrebbe essere indebolita.
- Questo strumento è disegnato per l'uso di laboratorio interno solo.
- Solo gli accessori e le parti hanno approvato o hanno fornito da Hoefer, Inc. potrebbe essere usato per operare, per mantenere, e per revisionare questo prodotto.
- Avvertendo! Perché questo strumento può sviluppare il voltaggio sufficiente e la corrente di produrre una scossa letale, la cura deve essere esercitata nella sua operazione. Questo strumento è disegnato conformemente all'EN61010-1:2001 la norma di sicurezza elettrica. Tuttavia, dovrebbe essere usato degli operatori solo correttamente addestrati. Leggere questo manuale intero prima di usare lo strumento e l'uso solo secondo le istruzioni.
- Lo strumento deve essere sempre usato col piombo di terra della spina di alimentazione correttamente hanno messo a terra alla terra alla presa di corrente principale.
- Usa il filo metallico e l'apparecchiatura solo intatti elettrici specifici per i voltaggi che lei userà. Tutta l'apparecchiatura collegata all'alto voltaggio dovrebbe essere conformemente a EN61010-1:2001.
- Tiene lo strumento come secco e pulito come possibile. Pulire regolarmente con un morbido, per spegnere il panno. Lasciare lo strumento asciuga completamente prima dell'uso.
- Non opera lo strumento nell'umidità estrema (al di sopra di 80%). Evitare la condensazione lasciando

l'unità equilibra alla temperatura ambiente quando portare lo strumento da un più freddo a un ambiente più caldo.

- Di permettere raffreddare sufficiente, assicura che gli sbocchi dello strumento non sono coperti.

Viktig Informasjon – Norwegian

- Hvis dette utstyret blir brukt i en måte ikke spesifisert ved Hoefer, Inc. beskyttelsen som ha blitt git av utstyret kan bli svekket.
- Dette instrumentet er utformet for innendørs laboratoriumbruk bare.
- Bare tilbehør og deler godkjente eller forsynte ved Hoefer, Inc. kan bli brukt for drive, vedlikeholde, og betjene dette produktet.
- Varsler ! Fordi dette instrumentet kan utvikle tilstrekkelig spenning og strøm til å produsere et dødelig sjokk, må bli øvd bekymring i dets drift.
- Dette instrumentet er utformet i samsvar med EN61010-1:2001 elektrisk sikkerhetsstandard. Likevel burde bli brukt det bare av skikkelig utdannede operatører. Les denne hele håndboken før bruking instrumentet og bruken bare gi til instruksjonene.
- Instrumentet må alltid bli brukt med jorden blyet av kraftkabelen som riktig ha blitt jordet til jord på hovedledningen utløp.
- Bruker bare uskadd elektrisk ledningsfremføring og utstyr som er spesifikk for spenningene du vil bruke. All utstyr koplet til høyspenning burde være i samsvar med EN61010-1:2001.
- Beholder instrumentet som tørker og rengjør som mulig. Visk regulært med et mykt, fuktig stoff. La instrumentet tørker komplett før bruk.
- Driver instrumentet i ekstrem fuktighet ikke (ovenfor 80%). Unngå kondensasjon ved å la enheten equilibrate til omgivelsestemperatur ved taen instrumentets fra et kaldere til et varmere miljø.
- Til å tillate tilstrekkelig kjølig, sikrer at ventilasjonsåpningene av instrumentet er ikke dekket.

Wazne Informacje – Polish

- Jeżeli ten sprzęt jest wykorzystywany w sposób nie określone przez Hoefer, Inc. do ochrony przewidzianej przez urządzenie może zostać obniżony.
- Instrument ten jest przeznaczony do użytku w laboratoriach kryty tylko.
- Tylko akcesoriów i części zatwierdzone lub dostarczone przez Hoefer, Inc. mogą być wykorzystane do eksploatacji, utrzymania i obsługi tego produktu.
- Uwaga! Ponieważ ten akt prawny może być rozwinięcie odpowiednich napięcie i bieżących do wyprodukowania śmiertelnego szoku, opiekę musi być wykonywane w działaniu.
- Ten instrument został zaprojektowany zgodnie z tym EN61010-1: 2001 Bezpieczeństwo elektryczne standard. Niemniej jednak, należy stosować jedynie przez odpowiednio przeszkoleni operatorów. Znajdą państwo to cały podręcznika przed zastosowaniem instrumentu i stosować jedynie zgodnie z instrukcjami.
- Instrument musi zawsze być wykorzystane z ziemi doprowadzić do zasilania detonującego właściwie uzasadnione na ziemię w sieci wodociągowej rynku zbytu.
- Wykorzystanie tylko nieuszkodzona elektrycznych drutów i urządzenia specjalne do napięć zapłacą wykorzystania. Wszystkie urządzenia podłączone do wysokiego napięcia powinny być zgodne z EN61010-1: 2001.
- Kontrolować instrumentu jako suche i czyste jak to możliwe. Wytrzeć regularnie przy pomocy miękkiego wilgotnej szmatki. Niech się instrumentem całkowicie wysuszyć przed użyciem.
- Nie prowadzą do instrumentu w skrajnych wilgotności (powyżej 80%). Zapobiec kondensacji najmu przez jednostkę równoważyć do temperatury pokojowej przy podejmowaniu instrumentu z chłodniejsze w cieplejszych środowiska.
- Aby umożliwić wystarczające chłodzenia, zapewniają, że rozcięcia of the instrument nie objęte ubezpieczeniem.

Informações Importantes – Portuguese

- Se este equipamento é usado numa maneira não especificada por Hoefer, Inc. que a protecção fornecida pelo equipamento pode ser comprometida.
- Este instrumento é projectado para uso de interior de laboratório só. Só acessórios e partes aprovaram ou forneceu por Hoefer, Inc. pode ser usada para operar, manter, e servicing este produto.
- Advertindo! Porque este instrumento pode desenvolver voltagem suficiente e corrente produzir um choque letal, cuidado deve ser exercitado em sua operação.
- Este instrumento é projectado de acordo com o

EN61010-1:2001 condição de segurança eléctrica. Não obstante, deve ser usado só por operadores adequadamente treinados. Leia este manual inteiro antes de usar o instrumento e use só de acordo com as instrucções.

- O instrumento sempre deve ser usado com o chumbo de terra do cordão de poder corretamente baseou a terra nos canos saída principais.
- Usa fio eléctrico só intacto e equipamento específico para as voltagens que você usará. Todo equipamento conectado a voltagem alta deve ser de acordo com EN61010-1:2001.
- Mantem o instrumento tão seco e limpo como possível. Limpe regularmente com um pano húmido macio. Deixe o instrumento secar completamente antes de uso.
- Não opera o instrumento em humidade extrema (acima de 80%). Evite condensação deixando o equilibrate de unidade a temperatura ambiental quando tomar o instrumento de um mais frio a um ambiente mais quente.
- Permitir esfriar suficiente, assegura que as aberturas do instrumento não são cobertas.

Información Importante – Spanish

- Si este equipo es utilizado en una manera no especificado por Hoefer, S.a. la protección proporcionado por el equipo puede ser dañada.
- Este instrumento es diseñado para el uso interior del laboratorio sólo. Sólo accesorios y partes aprobaron o suministraron por Hoefer, S.a. puede ser utilizado para operar, para mantener, y para atender a este producto.
- Advirtiendo! Porque este instrumento puede desarrollar voltaje y corriente suficientes para producir un golpe mortal, el cuidado debe ser ejercitado en su operación.
- Este instrumento es diseñado de acuerdo con el EN61010-1:2001 estándar eléctrico de seguridad. No obstante, debe ser utilizado sólo por operarios adecuadamente capacitados. Lea este manual entero antes de utilizar el instrumento y el uso sólo según las instrucciones.
- El instrumento siempre debe ser utilizado con el plomo de la tierra del cable de alimentación molió correctamente a la tierra en la salida de red.
- Utiliza alambre y equipo eléctricos sólo ilesos específicos para los voltajes que usted utilizará. Todo equipo conectado al voltaje alto debe ser de acuerdo con EN61010-1:2001.
- Mantiene el instrumento tan seco y limpio como posible. Enjugue regularmente con un suave, el trapo húmedo. Permita que el instrumento seque completamente antes de uso.
- No opera el instrumento en la humedad extrema (encima de 80%). Evite condensación permitiendo la unidad equilibra a la temperatura ambiente al tomar el instrumento de un más frío a un ambiente más tibio.
- Permitir refrigeración suficiente, asegure que las aberturas del

Viktig Information – Swedish

- om denna utrustning används i ett sätt som inte har specificeras av Hoefer, Inc. skyddet tillhandahöll vid utrustningen kan skadas.
- Detta instrument formges för inomhuslaboratorium användning bara.
- Bara medhjälpare och delar godkände eller levererade vid Hoefer, Inc. kan användas för fungera, underhålla, och servicing denna produkt.
- varna! Därför att detta instrument kan utveckla tillräcklig spänning och ström att producera en dödlig stöt, måste övas omsorg i dess funktion.
- Detta instrument formges i överensstämmelse med EN61010-1:2001 elektriska säkerheten standarden. Icke desto mindre, bör det användas bara av riktigt utbildade operatörer. Läs denna hela handbok före använda instrumentet och använd bara enligt undervisningarna.
- Instrumentet måste alltid användas med jorden blyet av kraften repet riktigt grounded till jorden på det huvudutloppet.
- Använder bara undamaged elektrisk tråd och utrustning specifik för spänningarna du ska använda. All utrustning kopplats som till hög spänning skulle vara i överensstämmelse med EN61010-1:2001.
- Håller instrumentet då torkar och rengör som möjlig. Torka regelbundet med en mjuk, fuktig trasa. Låt instrumentet torka fullständigt före användningen.
- Fungerar inte instrumentet i extrem fuktighet (över 80%). Undvik kondensering vid låta enheten equilibrate till omgivande temperatur när ta instrumentet från en kallare till en varmare miljö.
- Att tillåta tillräcklig kyla, ser till att hålen av instrumentet inte täcks.

Waste Electrical and Electronic Equipment (WEEE)

English

This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment.

French

Ce symbole indique que les déchets relatifs à l'équipement électrique et électronique ne doivent pas être jetés comme les ordures ménagères non-triées et doivent être collectés séparément. Contactez un représentant agréé du fabricant pour obtenir des informations sur la mise au rebut de votre équipement.

German

Dieses Symbol kennzeichnet elektrische und elektronische Geräte, die nicht mit dem gewöhnlichen, unsortierten Hausmüll entsorgt werden dürfen, sondern separat behandelt werden müssen. Bitte nehmen Sie Kontakt mit einem autorisierten Beauftragten des Herstellers auf, um Informationen hinsichtlich der Entsorgung Ihres Gerätes zu erhalten.

Italian

Questo simbolo indica che i rifiuti derivanti da apparecchiature elettriche ed elettroniche non devono essere smaltiti come rifiuti municipali indifferenziati e devono invece essere raccolti separatamente. Per informazioni relative alle modalità di smantellamento delle apparecchiature fuori uso, contattare un rappresentante autorizzato del fabbricante.

Spanish

Este símbolo indica que el equipo eléctrico y electrónico no debe tirarse con los desechos domésticos y debe tratarse por separado. Contacte con el representante local del fabricante para obtener más información sobre la forma de desechar el equipo.

Swedish

Denna symbol anger att elektriska och elektroniska utrustningar inte får avyttras som osorterat hushållsavfall och måste samlas in separat. Var god kontakta en auktoriserad tillverkarrepresentant för information angående avyttring av utrustningen.

Important user information

Please read this entire manual to fully understand the safe and effective use of this product.

If you have any comments on this manual, please send them to us at:

Hoefer, Inc.
84 October Hill Road
Holliston, MA 01746
support@hoeferinc.com

Hoefer, Inc. reserves the right to make changes in the specifications without prior notice.

All users must read this entire manual to fully understand the safe use of the PS300B.

WARNING! The warning symbol highlights instructions that must be followed to avoid personal injury. It is important not to continue until all stated conditions are met and clearly understood. Read the instructions to avoid hazardous conditions.

CAUTION! The caution symbol highlights instructions that must be followed to avoid damage to the product or other equipment. It is important not to continue until all stated conditions are met and clearly understood.

Note: Note is used to indicate information important for trouble-free and optimal use of the product.

CE certification

This product meets the requirements of applicable CE-directives. A copy of the corresponding Declaration of Conformity is available on request.

The CE symbol and corresponding declaration of conformity is valid for the instrument when it is:

- used in a laboratory location, and
- used as a stand-alone unit, or
- connected to other CE-marked Hoefer, Inc. instruments, or
- connected to other products recommended or described in this manual, and
- used in the same state as it was delivered from Hoefer, Inc. except for alterations described in this manual.

Power supply function and description



The Hoefer® PS300B power supply can be used with many electrophoresis applications, such as running standard PAGE gels, multiple PAGE minigels, horizontal agarose gels, semidry transfer and minigel tank transfers. The LED display reports power supply status. Parameters are set by pressing UP/DOWN arrow buttons in combination with a SELECT button. Four pairs of output jacks accept 4 mm plugs, which operate in parallel. The output jacks are color coded, recessed for safety, and accept 4 mm shielded (banana) plugs that come standard with most Hoefer equipment.

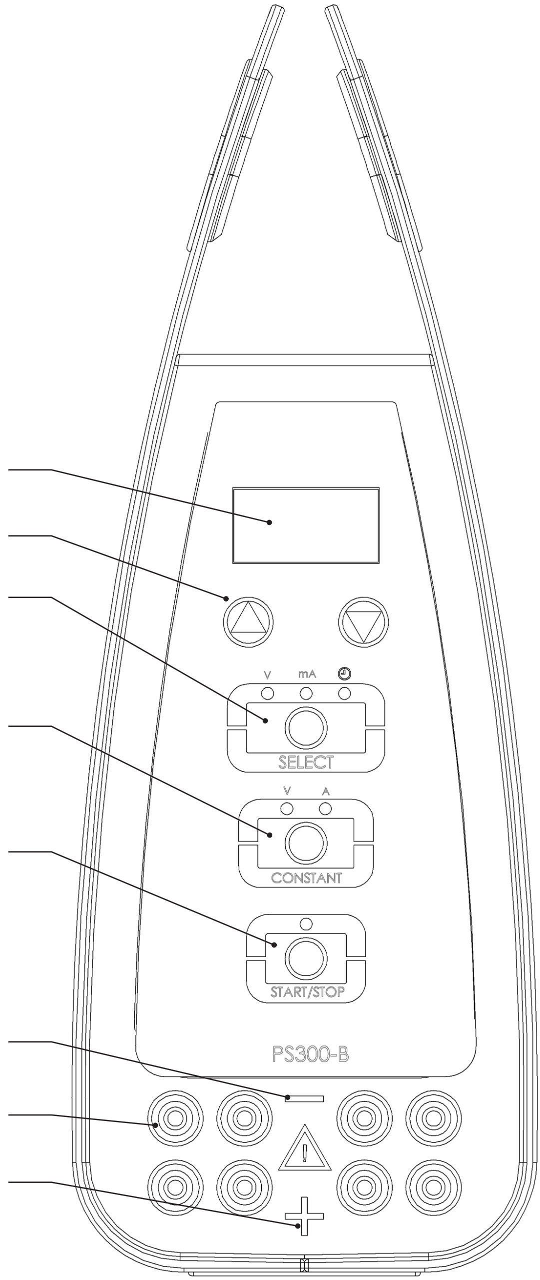
The user interface consists of a three digit, LED readout, and five buttons on a membrane keypad. Diagrams of the front and rear panel are shown on the following pages.

Note: The four pairs of output jacks always operate at the same voltage.

The sum of the current of all four outputs is displayed. This value can never exceed 500 mA.

The PS300B operates in constant voltage or constant current modes. Power output is controlled by setting a maximum value for voltage (up to 300 V), or current (up to 500 mA). The maximum output power at any time is 90 Watts. Run duration can be continuous or programmed to a maximum duration of 999 minutes.

Fig 1. Front view of PS300B Power Supply.



Unpacking

Unwrap all packages carefully and compare contents with the packing list, making sure all items arrived. If any part is missing, contact your local Hoefer, Inc. sales office. Inspect all components for damage that may have occurred while the unit was in transit. If any part appears damaged, contact the carrier immediately. Be sure to keep all packing material for damage claims or to use should it become necessary to return the unit.

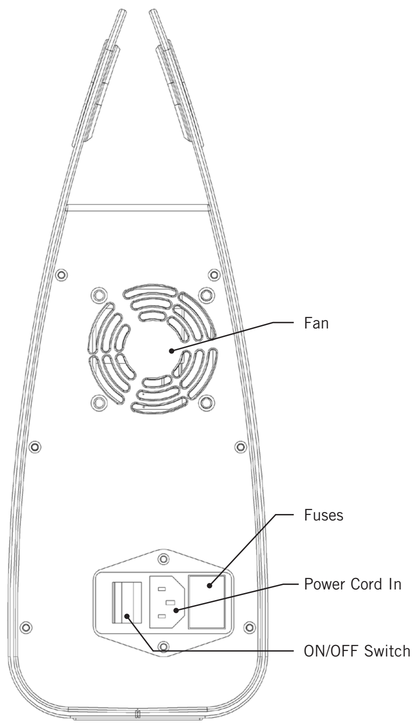


Fig 2. Rear view of PS300B Power Supply.

Specifications

Power requirement	Frequency, 50–60 Hz Line voltage, 100–240 VAC 144 VA
User interface	3 digit, red LED membrane keypad
Output	10–300 V, 1 V increment 4–500 mA, 1 mA increment 90 W maximum 4 pairs output jacks in parallel
Output connector	4-mm plugs
Timer	1–999 min, 1 min increment
Environmental operating conditions	Indoor use: 4–40 °C Relative humidity: 0–80% noncondensing Altitude: < 2000 m Pollution degree: 2 Installation category: II
Dimensions (h × w × d)	33.5 × 12.5 × 28 cm 13.2 × 4.9 × 11.0 in
Weight	2.4 kg (5.3 lb)
Safety protection circuits	Short circuit protection Open circuit protection
Product certifications	EN61010-1:2001, EN61326 A3:2003 Class B CE WEEE RoHS

Parameter overview

Please note the following power output limitations:

- The maximum power supply output is 90 W, so the maximum current of 500 mA is available at 180 V or less.
- At the maximum voltage setting of 300 V, the current is limited to 300 mA.

Power parameters

Because the power output limit is 90 W, and W = V × A, the maximum current of 500 mA can be delivered only if voltage is ≤180 V. Conversely, the maximum voltage of 300 V can be delivered only if the current is ≤300 mA.

Programmed limits

Variable	Range	Increment
Voltage	10–300 V	1 volt
Current	4–500 mA	1 milliamp
Time	0–999 minutes	1 minute
Timer = 0 = continuous run		
Timer = 1–999 = timed run in minutes		

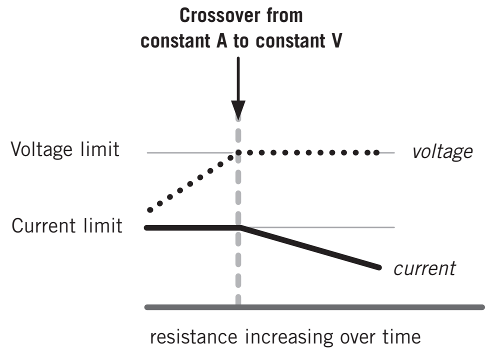
Note: In most cases, only one parameter can be held constant at a time.

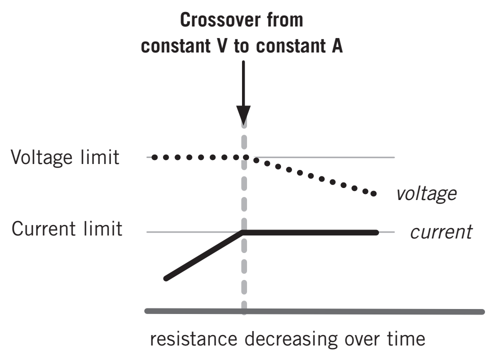
Power supply output limits

The PS300B can be programmed to limit voltage (V) or current (mA). The power supply will operate at the set limits provided the "load," or power requirement, does not exceed the power supply rating.

"Crossover" occurs when the second parameter limit is reached as system resistance changes (Fig 3). At this point, the second parameter becomes constant, and the previously unchanging parameter adjusts downward as system resistance changes. (System resistance is affected by discontinuous buffers, changes in temperature, and buffer depletion.) When the power supply is delivering power, the light above the CONSTANT button indicates which parameter is being held constant.

Fig 3. Power supply crossover.





There are some conditions when the power supply will operate at the upper limit of 90 W of constant power. When this occurs, both the constant V and the constant mA lights will be lit at the same time.

Power supply operation

WARNING! Use only one hand when making or breaking a connection to avoid making a complete circuit across your chest. Also, while connecting or disconnecting the leads, do not allow any part of your body to contact a grounded surface. Make sure your other hand is not touching anything that grounds you.

WARNING! If you are in the middle of a run and wish to connect or disconnect the leads, always turn the power supply off (press START/STOP). Wait for the display to read OFF, and the high voltage light to turn off.

Recommended leads:

- 4 mm (banana) plugs, fixed insulating sheaths, which are found on most Hoefer equipment.

Will also accept:*

- 4 mm (banana) plugs, unsheathed or retractable sheaths
- Stackable plugs

*Exposed metal surfaces on voltage leads can potentially lead to electrical shocks. If using these types of voltage leads, the following safety tips will reduce the risk of electrical shock.

1. Turn off the power supply before connecting or disconnecting the voltage leads.
2. Keep fingers away from metal components when connecting or disconnecting the voltage leads.

Connections

❶

Connect the mains power cord. Select the appropriate mains power cord for your region, and connect it to the power cord receptacle on the rear panel and to a suitable grounded AC power outlet. Place the power supply so that the fan on the back panel and the vents on the bottom are not obstructed.

❷

Connect the HV power leads. Connect the apparatus to the power supply by plugging the lead connectors into one pair of the recessed output jacks (Fig 4).

❸

Turn on the main power switch on the rear panel. The front panel should be illuminated.

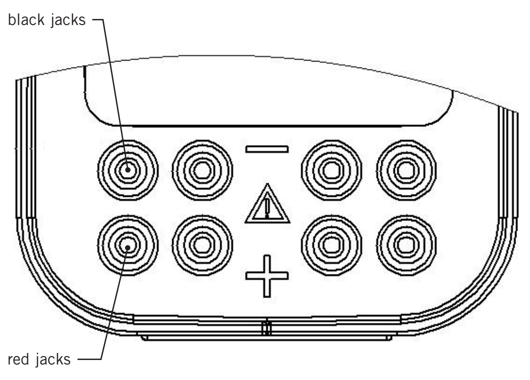


Fig 4. The output jacks are recessed and color coded.

Operation

❶

Select constant mode. Press the CONSTANT button to toggle between constant voltage and constant current mode. The selection is indicated by a green light.

❷

Adjust limit. Press the UP and DOWN buttons to set the constant parameter to the desired value.

❸

Check other run parameter. Press the SELECT button to check the set value of the other (non-constant) run parameter. This parameter is set by default to the maximum output of the power supply. This is the normal setting for many electrophoretic separations.

Optional: If there is another upper limit desired for this non-constant parameter, use the UP and DOWN buttons to set it to the desired value. The power supply can then operate in "Crossover" mode as explained on page 5.

❹

Set the timer *(optional)*. Press the SELECT button to move the green indicator light to under the clock symbol.

Continuous run. Set the timer at "0" to start a continuous run. The power supply will operate indefinitely, until stopped manually. The timer will start counting up, indicating the length of the run in minutes.

Timed run. Press the UP and DOWN buttons to set the timer to the desired run time, from 1 to 999 minutes. The timer counts down during the run, indicating the time remaining.

Note: When changing timer between "0" and "1", a message "PF1" or "PF0" will briefly be displayed, indicating that the Power Failure Detection Feature is either on (PF1) or off (PF0). See page 12 for more information on Power Failure Detection.

Note: The power supply slowly increases to the set value when starting a run.

The constant parameter can be adjusted during a run.

5

Start the run. Press the START/STOP button. The green light above the START/STOP button indicates that voltage and current are being applied to the output jacks. The green light above the CONSTANT button indicates which parameter (V or A) is limiting, and constant. The LED display shows the numerical value of the actual V or A output, or the time (press the SELECT button to toggle between the values).

6

In the case of a continuous run, press START/STOP to terminate the run. The LED display reads “OFF”.

A timed run automatically stops with a warning beep. The word “OFF”, and the conditions at the end of the run are flashed on the display so that the user can record the end conditions.

Pushing the SELECT button will return the power supply to the last run settings.

Pressing the CONSTANT button will reset the power supply.

Example: Set up conditions for running 2 minigels, each at a constant current of 30 mA.

1 Press the CONSTANT button to position the indicator light under “A”.

2 Press the UP and DOWN buttons to set the LED display value 60. (2 minigels × 30 mA each).

3 Press the SELECT button to position the indicator light under “V”. Observe that the volt limit has been automatically set to the maximum value of 300 V.

   Setting the voltage limit to the maximum setting ensures that the entire separation is run at 60 mA for as long as possible. Should the buffer or gel lose too much conductivity during the run, the operational 300 V or 90 W limits may be reached, at which point “crossover” automatically occurs and V becomes the limiting variable. The current would slowly drop below 60 mA at this point.

4 Press the SELECT button to position the indicator light under the Clock symbol. If desired, use the UP button to set the timer to a desired duration. If the run is continuous, set the timer value to "0".

5 Press the START/STOP button to start the run.

Example: Set maximum mA (30 mA per gel) and maximum V (180 V) settings, with automatic crossover.

Note: If this crossover condition occurs and is not desired, change the voltage or current setting to the power supply's operational maximum (500 mA or 300 V).

The power supply can automatically crossover between two different maximum settings, if desired. This will be illustrated below.

1 Press the CONSTANT button to position the indicator light under "A".

2 Press the UP and DOWN buttons to increase the LED display value to 60 (2 minigels × 30 mA each).

3 Press the SELECT button to position the indicator light under "V". Observe that the volt limit has been automatically set to the maximum value of 300 V. Press the UP and DOWN buttons to adjust this value down to 180 V.

4 Press the SELECT button to position the indicator light under the Clock symbol. If desired, use the UP button to set the timer to a desired duration. If the run is continuous, set the timer value to "0".

5 Press the START/STOP button to start the run.

Both Voltage and Current are monitored during the run. The power supply initially outputs 60 mA constant current (2 minigels × 30 mA each). The voltage output will be <180 V, but may rise during the electrophoresis run, owing to gradual depletion of the buffer during the run. If the voltage never exceeds 180 V during the run, then the gels will run at 60 mA for the entire run. If the voltage increases to 180 V, then the power supply will automatically "crossover" to constant voltage mode, in order to keep voltage from exceeding 180 V. Now, output current will slowly decrease below the set limit of 60 mA because the 180 V set limit is now the limiting value in the circuit.

Power Failure Detection (PFD)

The Power Failure Detection feature will save the time, voltage and current settings in the event of a power outage, and automatically continue the run when the power is restored.

To alert the user that a power failure occurred during the run, the error message “E6” flashes at the end of the run, instead of the usual “OFF” message. The “E6” error message means that despite the power outage, the power supply successfully supplied the programmed voltage and current for the entire length of time that was programmed. The time shown at the end of the run is the time the gel ran since power was restored, not the total time of the run.

The default settings for Power Failure Detection are:

Run	Time Setting	PFD	Code
Timed Run	1–999 minutes	ON	PF1
Continuous Run	0	OFF	PF0

The Power Failure Detection feature can be deactivated during a timed run.

1. Press the SELECT button to move the indicator light under the Clock symbol.
2. Press the UP and DOWN buttons to enter in the run time in minutes.
3. Press both the UP and DOWN buttons at the same time. The display will briefly show “PF0”, indicating that the PFD mode is disabled.
4. Press both the UP and DOWN buttons at the same time again. The display will show “PF1”, indicating that the PFD mode is enabled.

Troubleshooting

The power supply has built-in error messages to help troubleshoot problems with the electrical circuit. The error messages, and possible corrective actions, are listed below:

Error code	Explanation	Possible solutions
E1	**No Load Detected.** The voltage leads to the electrophoresis cell are not attached. The current load is below 4 mA, the lower limit of the power supply.	Check all connections. Verify that buffer volumes are sufficient to contact all electrode wires and that buffer is contacting both surfaces of the gel. A constant volt run with low volt setting may result in a current below the 4 mA limit. Press any button* to clear the error code.
E3	**Change in Load Resistance.** Open circuit was detected at some point after a successful start. Buffer is leaking from the cells. There is a loose electrical connection in the circuit.	Check and correct all potential resistance problems. Check buffer volumes. Check all voltage leads. Check the fit of power supply adapters, if used. The output current may have fallen below the 4 mA limit of the power supply. Press any button* to clear the error code.
E4	**Power Failure** during a continuous run (no timer being used)	Restart the run, if desired. Press any button* to clear the error code.
E5	**Power Failure** during a timed run with PFD option disabled. Run was not completed.	Restart the run, if desired. Press any button* to clear the error code. See page 12 for information on the PFD option.
E6	**Power Failure** during a timed run with PFD option enabled. Despite the power outage the run was completed successfully.	Press any button* to clear the error code. See page 12 for information on the PFD option.
E7	**Short Circuit** Load current exceeded 500 mA. The voltage load is below 10 V, the lower limit of the power supply.	Check for any short circuit or evidence of electrical arcing. Buffer concentration too high. A constant current run with low current may result in a voltage below the 10 V limit.

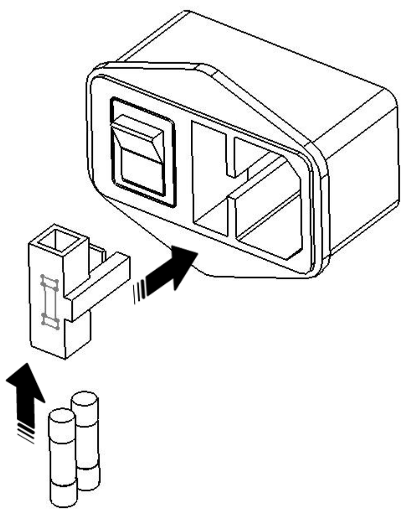
*Press any button, except the START/STOP button, to clear the Error Message.

Other Problems:
No display and/or fan not operating: Check that the power supply is plugged into a working receptacle. Check that the main power switch is on. Check fuses.

Replacing the fuses

CAUTION! Turn the mains power supply switch off and detach the power cord before replacing input mains fuses!

- Unplug the power cord from the power supply.
- Locate the fuse compartment on the rear panel.
- Use a screwdriver to pry out the fuse compartment. There are two fuses in the compartment. Check and replace any blown fuses with a fuse of the same size and ratings.
- FUSES (2); 250 V 3.15 A 5 × 20 mm fast blow.



Care and maintenance

- Turn the mains power switch off and unplug the power cord before cleaning.
- Use a soft cloth dampened with water or a mild cleaning solution to clean the cabinet and display.
- If spilled liquids contact the circuit boards, unplug the power supply and allow to dry completely. Call Hoefer, Inc. for advice before using.

Technical service and repair

Hoefer, Inc. offers complete technical support for all of our products. If you have any questions about how to use this product, or would like to arrange to repair it, please call or fax your local Hoefer, Inc. representative.

Ordering information

	Qty.	Code no.
PS300B Power Supply, universal voltage	1	PS300B
Power Cord, US	1	PSCORD-115V
Power Cord, Euro	1	PSCORD-230V
User Manual	1	PS300B-IM
Fuse 250 V 3.15 A FB 5 × 20 mm	pack/5	PSF3A-FB-5X20

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